Benjamin Daniel Poole

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Education

University of North Carolina at Charlotte, *PhD in Computer Science*	2020-Expected 2026
University of North Carolina at Charlotte, *MS in Computer Science*	2018–2020
University of North Carolina at Charlotte, *BS in Computer Science*	2014–2018

Experience

Primary Instructor and Co-Instructor, UNC Charlotte – Charlotte, NC — 2019-Present

- Developed curriculum for and instructed intro ML and applied ML courses with 50+ students.
- Gained vital communication skills for teaching difficult technical concepts and how to create intuitive material for students from all background.

Data Analytics Intern , Klarrio – Apex, NC — May-Aug 2019

- Helped research and prototype stateful streaming prototype using Pulsar for visualizing Twitter analytics data using AWS, Pulsar, Docker, Python, and Java.
- Demonstrated the usability of new streaming technology for the company to integrate into their workflow.

Software Engineer Intern, IBM – Durham, NC — May-Aug 2017

- Worked alongside of developers and users to develop quality of life CLI tools for IBM's cloud open source FaaS project OpenWhisk.
- Implemented CLI tools in Go and developed production level test cases in Scala.

Projects

Interactive Reinforcement Learning (https://github.com/RL-BCI-Lab/intrl) — 2023-Present

- Designed novel code base for interactive RL, allowing for humans to capture demonstrations and feedback for training RL agents.
- Implemented various imitation algorithms and designed a novel algorithm to directly manipulate an agent's action distribution using human feedback.

GC4EPTN (github.com/RL-BCI-Lab/gc4eptn) — 2023-2024

- Researched Guassian graphical models for graph construction of electrical power transmission networks using a real-time simulated time series dataset.
- Gained experience as machine learning project lead and collaborating with domain specialists for data gathering.

DeepBCI (github.com/RL-BCI-Lab/deepbci) — 2021-2022

- Led project investigating the transferability of machine learning models when classifying variations in error-related potential brain signals.
- Designed and ran experiments for collecting BCI time series data across multiple subjects. Developed code base for preprocessing, visualizing, and training CNN/SVM models.

OpenWhisk CLI Development

- Developed quality-of-life updates for users and developers using OpenWhick's command line API.
- Merged multiple projects: Last Flag, Bashauto, Limit HTTP Body, Alphabetize Listings

Publications

Data-Driven Graph Construction of Power Flow Graphs for Electric Power Transmission Networks. ICMLA, 2024.

Towards interactive reinforcement learning with intrinsic feedback. Neurocomputing, 2024. 10.1016/j.neucom.2024.127628

Error-related Potential Variability: Exploring the Effects on Classification and Transferability, SSCI, 2022. 10.1109/SSCI51031.2022.10022137

Technical Skills

Languages: Python, Java, Go, C#
Expertise: Machine learning, Reinforcement Learning, Graph Structure Learning, Linear Algebra. Statistics
Tools: PyTorch, TensorFlow, Keras, Sklearn, NumPy, Git, Docker, Linux, Slurm